

CLAIMS

1. A system for detecting position or dimensions of a piece (3), including
- 5 • at least one checking probe (1) with detection devices (2),
- a remote transmission unit (4), connected to the detection devices (2) of said at least one probe (1), and adapted for wirelessly transmitting pulse signals
- 10 (5) indicative of the state of said at least one probe (1), and
- a receiver unit (7), adapted for wirelessly receiving signals (5,NS) and including
- an input section, with at least one receiver device
- 15 (13), adapted for providing input signals (VA),
- a generation and control section (16,16') adapted for generating and for defining reference signals (VTH), and
- a comparison section (20) connected to the input section and the generation and control section
- 20 (16,16'), adapted for providing output signals (VO) responsive to the results of comparisons between the input signals (VA) and the reference signals (VTH),
- the generation and control section (16,16') including
- 25 threshold generation circuits (30) and automatic checking circuits (40,50) for checking the difference in amplitude between the input signals (VA) and the reference signals (VTH),
- characterized in that said automatic checking circuits
- 30 include discriminating circuits (50) adapted for detecting at least one attribute of the input signals (VA) and for varying said difference in amplitude if said at least one detected attribute corresponds to wirelessly received signals that differ from said pulse signals (5) transmitted
- 35 by the remote unit (4).
2. The system according to claim 1, wherein said input

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section includes amplification circuits (15) of the received signals (5,NS), said input signals (VA) being amplified signals.

- 5     3.     The system according to claim 1 or claim 2, wherein said at least one attribute is the distribution in amplitude of the input signals (VA).
- 10     4.     The system according to claim 3, wherein the discriminating circuits (50) include components (51,53,55,57) adapted for evaluating the duty-cycle of the input signals (VA).
- 15     5.     The system according to claim 4, wherein the discriminating circuits (50) include components (51,53,55,57) adapted for detecting input signals (VA) with duty-cycle exceeding a predetermined value, and for consequently varying said difference in amplitude.
- 20     6.     The system according to one of the preceding claims, wherein the automatic checking circuits also include detecting circuits (40) adapted for revealing peak values of the amplitude of the input signals (VA), the detecting circuits (40) being connected to the threshold generator
- 25     circuits (30) for dynamically and temporarily varying said reference signals (VTH).
- 30     7.     The system according to one of the preceding claims, wherein said discriminating circuits (50) are connected to the threshold generating circuits (30) for varying in amplitude said reference signals (VTH).
- 35     8.     The system according to claim 2, wherein said discriminating circuits (50) are connected (60) to the amplification circuits (15) for varying in amplitude said amplified signals.

9. A method for checking the dimensions or the position of a piece (3), by means of at least one checking probe (1) including detection devices (2), at least one remote transmission unit (4) connected to said at least one checking probe (1) and adapted for wirelessly transmitting signals in the form of pulses (5), and a receiver unit (7), adapted for receiving said signals in the form of pulses (5), whereby input signals (VA) in the receiver unit (7) are compared in amplitude with reference signals (VTH) for providing output signals (VO), and the difference in amplitude between the reference signals (VTH) and the input signals (VA) is varied in a dynamic way, characterized by the steps of:

- identifying the noise signals (NS) on the basis of attributes differing from those of the signals (5) transmitted by the remote transmission unit (4), and
- consequently varying in a dynamic way said difference in amplitude.

10. The method according to claim 9, wherein said step of identifying the noise signals (NS) is carried out based on a distribution in amplitude of the input signals (VA) that differs from that of the signals (5) transmitted by the remote transmission unit (4).

11. The method according to claim 10, wherein said step of identifying the noise signals (NS) is carried out based on a verification of the duty-cycle value of the input signals (VA).

12. The method according to claim 11, wherein said step of identifying the noise signals (NS) is carried out by means of a comparison of the duty-cycle of the input signals (VA) with a minimum predetermined value.

13. The method according to one of claims from 9 to 12, wherein said step of varying the difference in amplitude

includes making the reference signals (**VTH**) greater than, in terms of absolute value, the peak amplitude of the component of the input signals (**VA**) corresponding to the noise signals **NS**.

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14. The method according to one of claims from 9 to 13, wherein in the receiver unit (**7**), said signals in the form of pulses (**5**) are received and amplified in order to obtain said input signals (**VA**).

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15. The method according to one of claims from 9 to 14, wherein said step of varying the difference in amplitude includes an automatic check of the amplitude of the reference signals (**VTH**).

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16. The method according to claim 14, wherein said step of varying the difference in amplitude includes an automatic control (**60**) of the amplitude of the input signal (**VA**).